Introductory Comments:

In the Office Action, the Examiner rejected claims 1, 3, 4, 8, 9, 11 and 12 under 35 U.S.C. 103(a) as being unpatentable over the article titled "Improvement of Picture Quality and Coding Efficiency Using Discrete Cosine Transform" dated June 1990 by Yuuji Izawa and Masaaki Takizawa ("Izawa"). The Examiner objected to claims 5-7 and 13-14 as being dependent from a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 15 to 20 are allowed.

Amendment to the Claims:

Please amend the claims as follows:

1. (Currently Amended) Apparatus for coding video data, comprising means for receiving pixel values organised in frames each comprising a matrix of video blocks, each video block comprising a video matrix of N pixel values, and processor circuitry arranged:

a) to set each element in a prediction matrix to an initial prediction value;

b) in the prediction matrix, to apply a smoothing transform to the values along rows and then along columns, or vice versa, to obtain interpolated values;

c) to set the prediction values to the interpolated values;

d) to calculate the differences between the prediction values and corresponding received pixel values to produce a residual prediction matrix containing prediction residuals; and

e) to perform a discrete cosine transform on the prediction residuals to obtain elements of a compressed video data matrix, wherein the processor circuitry is arranged iteratively to calculate the prediction values used to calculate the prediction residuals by repeating b) and c)~~.~~; and

wherein a) is performed by performing a discrete cosine transform on the video matrix to obtain a transform video matrix of N coefficients, selecting *n* of the coefficients, setting the N-*n* remaining coefficients to zero to obtain an initial prediction transform matrix of initial prediction coefficients, and performing an inverse discrete cosine transform on the initial prediction transform matrix to obtain a matrix of N initial prediction values.

2. Cancelled.

3. (Previously Amended) Apparatus as claimed in claim 1, wherein the number of iterations is predetermined.

4. (Previously Amended) Apparatus as claimed in claim 1, wherein the processor circuitry is arranged to repeat the iterations until the change in a prediction value between one iteration and the next, is less than a predetermined threshold.

5. Cancelled.

6. (Currently Amended) Apparatus as claimed in claim 1~~5~~, wherein the processor is arranged to set *n* of the elements in the compressed video data matrix equal to the *n* coefficients selected from the transform video matrix, and to select the remaining N-*n* coefficients from the prediction residuals.

7. (Original) Apparatus as claimed in claim 6, wherein the processor is arranged to adjust the prediction residuals before selecting the remaining N – *n* elements, by:

f) performing a discrete cosine transform on the reset prediction value matrix to obtain a prediction transform matrix,

g) selecting *n* coefficients from the transform prediction matrix,

h) subtracting the selected *n* transform prediction matrix coefficients from the selected *n* transform video coefficients to obtain *n* residual coefficients;

i) setting *n* elements of an adjustment transform matrix to the values of the *n* residual coefficients and setting N –*n* remaining elements to zero;

j) performing an inverse discrete cosine transform on the adjustment transform matrix to obtain an adjustment value matrix; and

k) subtracting the adjustment value matrix from the reset prediction value matrix.

8. (Previously Amended) Apparatus as claimed in claim 1, including means for processing pixels in a current and a previous frame to produce pixel values which are the prediction residual between the actual pixel and a motion compensated pixel.

9. (Currently Amended) Apparatus for expanding compressed video data, comprising processor circuitry arranged:

a) to perform an inverse discrete cosine transform on received compressed video data to obtain a prediction residual matrix;

b) to set each element in a prediction block matrix to the initial prediction value;

c) in the prediction matrix, to apply a smoothing transform to the values along rows and then along columns, or vice versa, to obtain interpolated values;

d) to set the prediction values to the interpolated values; and

e) to calculate the sum of the prediction values and the prediction residuals in corresponding positions in the received coded block matrix to produce an expanded video data matrix, wherein the processor circuitry is arranged iteratively to calculate the prediction values used to calculate the prediction residuals by repeating c) and d)~~.~~; and

wherein a) is performed by performing a discrete cosine transform on the video matrix to obtain a transform video matrix of N coefficients, selecting *n* of the coefficients, setting the N-*n* remaining coefficients to zero to obtain an initial prediction transform matrix of initial prediction coefficients, and performing an inverse discrete cosine transform on the initial prediction transform matrix to obtain a matrix of N initial prediction values.

10. Cancelled.

11. (Previously Amended) Apparatus as claimed in claim 9, wherein the number of iterations is predetermined.

12. (Previously Amended) Apparatus as claimed in claim 9, wherein the processor circuitry is arranged to repeat the iterations until the change in the prediction value between one iteration and the next, is less than a predetermined threshold.

13. Cancelled.

14. (Currently Amended) Apparatus as claimed in claim 9~~13~~ for expanding compressed video data, wherein the processor is arranged to select N – *n* elements from the compressed video data matrix and to set *n* elements to zero before performing the inverse discrete cosine transform to obtain the prediction residual matrix.

15. (Previously Presented) Apparatus for coding video data adapted to receive pixel values organised in frames each comprising a matrix of video blocks, each video block comprising a video matrix of N pixel values, and processor circuitry arranged:

a) to set each element in a prediction matrix to an initial prediction value;

b) in the prediction matrix, to apply a smoothing transform to the values along the rows and then along the columns, or vice versa, to obtain interpolated values;

c) to reset the prediction value to the interpolated value;

d) to calculate the difference between the reset prediction values and corresponding received pixel values to produce a residual prediction matrix containing the prediction residuals; and

e) to perform a discrete cosine transform on the prediction residuals to obtain elements of a compressed video data matrix, wherein a) is performed by performing a discrete cosine transform on the video matrix to obtain a transform video matrix of N coefficients, selecting *n* of the coefficients, setting the N-*n* remaining coefficients to zero to obtain an initial prediction transform matrix of initial prediction coefficients, and performing an inverse discrete cosine transform on the initial prediction transform matrix to obtain a matrix of N initial prediction values.

16. (Previously Presented) Apparatus as claimed in claim 15, wherein the processor circuitry is arranged iteratively to calculate the reset prediction value used to calculate the prediction residual by repeating b) and c).

17. (Previously Presented) Apparatus as claimed in claim 15, including means for processing pixels in a current and a previous frame to produce pixel values

which are the prediction residual between the actual pixel and a motion compensated pixel.

18. (Previously Presented) Apparatus for expanding compressed video data, comprising processor circuitry arranged:

a) to perform an inverse discrete cosine transform on received compressed video data to obtain a prediction residual matrix;

b) to set each element in a prediction block matrix to the initial prediction value;

c) in the prediction matrix, to apply a smoothing transform to the values along the rows and then along the columns, or vice versa, to obtain interpolated values;

d) to reset the prediction value to the interpolated value; and

e) to calculate the sum of the reset prediction values and the prediction residual in corresponding positions in the received coded block matrix to produce an expanded video data matrix, wherein a) is performed by performing a discrete cosine transform on the video matrix to obtain a transform video matrix of N coefficients, selecting *n* of the coefficients, setting the N-*n* remaining coefficients to zero to obtain an initial prediction transform matrix of initial prediction coefficients, and performing an inverse discrete cosine transform on the initial prediction transform matrix to obtain a matrix of N initial prediction values.

19. (Previously Presented) Apparatus as claimed in claim 18, wherein the processor circuitry is arranged iteratively to calculate the reset prediction value used to calculate the prediction residual by repeating c) and d).

20. (Previously Presented) Apparatus as claimed in claim 18 for expanding compressed video data, wherein the processor is arranged to select $N - n$ elements from the compressed video data matrix and to set n elements to zero before performing the inverse discrete cosine transform to obtain the prediction residual matrix.